

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
19 September 2002 (19.09.2002)

PCT

(10) International Publication Number  
**WO 02/072826 A3**

(51) International Patent Classification<sup>7</sup>: **C12N 15/12**,  
C07K 14/475, A61K 38/18, C12Q 1/68, C12N 1/21, 5/10

**ROSSOMANDO, Anthony** [US/US]; 50 Asti Avenue,  
Revere, MA 02151 (US).

(21) International Application Number: PCT/EP02/02691

(74) Agents: **MACLEAN, Martin, Robert** et al.; Mathys &  
Squire, 100 Gray's Inn Road, London WC1X 8AL (GB).

(22) International Filing Date: 12 March 2002 (12.03.2002)

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG,  
SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
09/804,615 12 March 2001 (12.03.2001) US

(63) Related by continuation (CON) or continuation-in-part  
(CIP) to earlier application:  
US 09/804,615 (CIP)  
Filed on 12 March 2001 (12.03.2001)

(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR,  
GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent  
(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,  
NE, SN, TD, TG).

**Published:**  
— with international search report

(88) Date of publication of the international search report:  
10 April 2003

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(71) Applicants (*for all designated States except US*): **BIO-GEN, INC.** [US/US]; 14 Cambridge Center, Cambridge, MA 02142 (US). **NS GENE A/S** [DK/DK]; Pederstrupvej 93, DK-2750 Ballerup (DK).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **SAH, Dinah, Wen, Yee** [US/US]; Biogen, Inc., 14 Cambridge Center, Cambridge, MA 02142 (US). **JOHANSEN, Teit, E.** [DK/DK]; NS Gene A/S, Pederstrupvej 93, DK-2750 Ballerup (DK).

(54) Title: NEUROTROPHIC FACTORS

(57) Abstract: The invention relates to neublastin neurotrophic factor polypeptides, nucleic acids encoding neublastin polypeptides, and antibodies that bind specifically to neublastin polypeptides, as well as methods of making and methods of using the same.



**WO 02/072826 A3**

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 02/02691

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/12 C07K14/475 A61K38/18 C12Q1/68 C12N1/21  
C12N5/10

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, SEQUENCE SEARCH, MEDLINE, BIOSIS

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00 18799 A (MILBRANDT JEFFREY D ;BALOH ROBERT H (US); UNIV WASHINGTON (US)) 6 April 2000 (2000-04-06) see the sequence for the pre-pro- artemin growth factor protein, the third predicted mature artemin polypeptide and fragment thereof, claims 4, 5, 10, Fig 1B, 3C and p. 6 ---	1-82
X	WO 00 01815 A (BLOM NIKOLAJ ;HANSEN CLAUS (DK); JOHANSEN TEIT E (DK); NEUROSEARCH) 13 January 2000 (2000-01-13) see Claim 14, Pages 6-8, 41-42, 97 ---	1-82
X	WO 00 73348 A (BAKER KEVIN P ;GENENTECH INC (US); GODDARD AUDREY (US); GURNEY AUS) 7 December 2000 (2000-12-07) see Sequence 56 --- -/-	1-82



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*Z\* document member of the same patent family

Date of the actual completion of the international search

13 December 2002

Date of mailing of the international search report

20/12/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Paresce, D

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 02/02691

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 97 11964 A (AMGEN INC) 3 April 1997 (1997-04-03) see p. 3, 8-13 ---	1-82
Y	WO 00 34475 A (ASUNCION FRANKLIN J ;SIMONET WILLIAM SCOTT (US); AMGEN INC (US); J) 15 June 2000 (2000-06-15) see p. 13-14, p. 41-2 ---	1-82
A	SAARMA M ET AL: "OTHER NEUROTROPHIC FACTORS: GLIAL CELL LINE-DERIVED NEUROTROPHIC FACTOR (GDNF)" MICROSCOPY RESEARCH AND TECHNIQUE, WILEY-LISS, CHICHESTER, GB, vol. 45, no. 4/5, 1999, pages 292-302, XP000885944 ISSN: 1059-910X see p. 294-6 -----	1-82

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP 02/02691

### Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  

Although claims 24, 38-53 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

#### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 02/02691

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
W0 0018799	A	06-04-2000	AU 6405499 A	17-04-2000
			CA 2343927 A1	06-04-2000
			EP 1028975 A1	23-08-2000
			JP 2002534957 T	22-10-2002
			WO 0018799 A1	06-04-2000
			US 6284540 B1	04-09-2001
			US 2002002269 A1	03-01-2002
W0 0001815	A	13-01-2000	AU 4769399 A	24-01-2000
			BR 9911908 A	27-03-2001
			CA 2336218 A1	13-01-2000
			CN 1311818 T	05-09-2001
			WO 0001815 A2	13-01-2000
			EE 200100008 A	17-06-2002
			EP 1095140 A2	02-05-2001
			HU 0103758 A2	28-01-2002
			JP 2002519061 T	02-07-2002
			NO 20010088 A	06-03-2001
			PL 345950 A1	14-01-2002
			TR 200100056 T2	21-11-2001
			US 2002055467 A1	09-05-2002
W0 0073348	A	07-12-2000	AU 1748200 A	19-06-2000
			AU 1932000 A	03-07-2000
			AU 2192800 A	12-07-2000
			AU 2215300 A	28-12-2000
			AU 2495200 A	28-09-2000
			AU 2600800 A	28-09-2000
			AU 2879400 A	31-07-2001
			AU 3246100 A	28-12-2000
			AU 3381600 A	28-09-2000
			AU 3514400 A	28-09-2000
			AU 3774300 A	18-12-2000
			AU 4328699 A	20-12-1999
			AU 5441200 A	18-12-2000
			AU 5460100 A	18-12-2000
			AU 5591100 A	18-12-2000
			EP 1173563 A1	23-01-2002
			EP 1159419 A1	05-12-2001
			EP 1220905 A2	10-07-2002
			EP 1210418 A1	05-06-2002
			EP 1212417 A2	12-06-2002
			EP 1185648 A2	13-03-2002
			EP 1250437 A2	23-10-2002
			EP 1135485 A2	26-09-2001
			EP 1141285 A2	10-10-2001
			EP 1141289 A2	10-10-2001
			US 2002119130 A1	29-08-2002
			WO 0053753 A2	14-09-2000
			WO 0053755 A2	14-09-2000
			WO 0153486 A1	26-07-2001
			WO 0075327 A1	14-12-2000
			WO 0053757 A2	14-09-2000
			WO 0053758 A2	14-09-2000
			WO 0073454 A1	07-12-2000
			WO 0073445 A2	07-12-2000
			WO 0073348 A2	07-12-2000
			WO 0073452 A2	07-12-2000

# INTERNATIONAL SEARCH REPORT

Information on patent family members

In tional Application No

PCT/EP 02/02691

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0073348	A	US 2002164646 A1	07-11-2002
		US 2002160392 A1	31-10-2002
		US 2002098505 A1	25-07-2002
		US 2002098506 A1	25-07-2002
		US 2002098507 A1	25-07-2002
		US 2002127584 A1	12-09-2002
		US 2002094416 A1	18-07-2002
		US 2002177165 A1	28-11-2002
		WO 0032221 A2	08-06-2000
		WO 0036102 A2	22-06-2000
		WO 0037640 A2	29-06-2000
WO 9711964	A 03-04-1997	US 6184200 B1	06-02-2001
		AU 707528 B2	15-07-1999
		AU 7074696 A	17-04-1997
		CA 2232749 A1	03-04-1997
		CN 1197461 A	28-10-1998
		CZ 9800882 A3	17-02-1999
		EA 1204 B1	25-12-2000
		EP 0920448 A1	09-06-1999
		HU 9802262 A2	28-01-1999
		JP 11512709 T	02-11-1999
		NO 981430 A	30-03-1998
		NZ 318697 A	29-09-1999
		SK 38998 A3	12-07-1999
		WO 9711964 A1	03-04-1997
		ZA 9608087 A	12-06-1997
WO 0034475	A 15-06-2000	AU 2354600 A	26-06-2000
		EP 1137774 A2	04-10-2001
		JP 2002531128 T	24-09-2002
		WO 0034475 A2	15-06-2000